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ABSTRACT

This paper describes a longitudinal research study on the development of sextyping in adolescent females during their sophomore, junior, and senior years of high school. Each fall the test group of 65 females was administered the Bem Sex Role Inventory. Respondents whose self-perception was characterized as feminine demonstrated consistency across the sophomore and junior years of high school. Those who viewed themselves as androgynous also exhibited a consistent attitude with greatest variability during the sophomore year. The adolescent females who viewed themselves as possessing masculine characteristics at the outset exhibited a dramatic change in self-perception during the sophomore year. The authors discuss at length their use of two data analysis techniques in determining the results of the study. In one instance, the Bem t-test analysis was used as the dependent variable while in the second instance, the simple difference score recommended by R. Strahan was employed. This approach was undertaken in an attempt to determine the advantages of one approach over the other in a longitudinal analysis. (Author/AV)

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Development of sextyping in adolescent females: A longitudinal study [1]

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WORKING DRAFT

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Abstract

The development of sextyping for sixtyfour adolescent females was followed longitudinally across a two year interval extending from the fall of the sophomore year in high school to the fall of the senior year. Adolescent females whose self-perception was characterized as feminine demonstrated the greatest consistency across the sophomore and junior years of high school. Those who viewed themselves as androgynous also exhibited a consistent attitude with greatest variability during the sophomore year. The adolescent females who viewed themselves as possessing masculine characteristics at the outset, exhibited a dramatic change in self-perception during the sophomore year.

Data were analyzed in two different manners that have been assumed to be equilalent. In one instance, the Bem t-test analysis was used as the dependent variable while in the second instance, the simple difference score recommended by Strahan was employed. This approach was undertaken in an attempt to determine the advantages (if any) of one approach over the other in a longitudinal analysis.

A trend in current psychological literature is determining whether a person is oriented toward masculine, feminine or androgynous attitudes. Studies on children have generally focused on the association between parental attitudes and the child's behavior while studies on college students have focused on which attitude the students have developed and how it is associated with gender or personality attributes (e.g. achievement). The period of adolescence and the development of sexual attitudes during these years has been neglected. This study was carried out to determine whether there are changes in sexual attitudes between the years when the family is the main influence and the period of adulthood when attitudes are assumed to be quite stable.

From a cross-sectional developmental perspective, data suggest dramatic changes in the way adolescent females view themselves (Sola & Phye, 1978). During early adolescence, the individual is attempting to bring biological and social realms of experience together to form a consistent self-perception and to become a productive member of society (Dreyer, 1977). The sophomore year in high school appears to be a crucial time during which the mature form of one's sex role identity, a combination of biological and social elements, is developing and crystallizing (Sola & Phye, 1978).

From a developmental perspective (Block, 1973), it has been suggested that personal maturity is associated with greater integration of characteristics that society deems masculine and feminine. If this is accurate, one would expect individuals who are at the latter stages of the adolescent phase of development to be more androgynous. Qualification is warranted, however, since Block (1973)

indicated that support for the aforementioned hypothesis was stronger in the case of males than females. Also, while one would logically expect an increase in maturity during the adolescent years, it does not necessarily follow that a sufficient level of personal maturity is attained by the senior year in high school for a clear-cut expression of androgyny.

The recent efforts of Spence and Helmreich (1978) have helped shed additional light on the development of sex role expectations and a number of correlates (i.e. attitudes toward women, self-esteem, etc.) and their antecedents (i.e. parental attitudes and behavior). While the Spence and Helmreich studies have made a substantial contribution to the developmental literature, they differ from the present study in several important respects. The high school population studied by Spence and Helmreich consisted of both males and females but was restricted to only junior and senior students. Also, the Spence and Helmreich data were obtained using a cross-sectional design. Additionally, the present study used the Bem Sex Role Inventory (BSRI; Bem, 1974), while Spence and Helmreich used the Personal Attribute Questionnaire (PAQ).

Objectives

Interest in the development of sextyping and concern for the adolescent female prompted the initiation of this study. The authors believed that adolescent females are at a crucial stage in the development of a consistent self-perception. It was these factors that prompted the initiation of a longitudinal study of the development of sextyping in adolescent females during the Fall of 1974. To our knowledge, this is the only longitudinal study of sextyping in adolescent females that covers the high school years (grades 10, 11, & 12). The following data are descriptive in nature. These data, in conjunction with data from a large

cross-sectional study of adolescent females (Sola & Phye, 1978) are considered to be a start toward the development of normative data that characterize a population other than the college age population upon which most sextyping studies have been conducted.

Methodological issues were also of concern. The first issue evolved around the use of the t-ratio proposed by Bem (1974), or the simple difference score proposed by Strahan (1976) as the dependent variable. While the suggestion has been offered that the two indexes are equivalent, equivalency has not been demonstrated with longitudinal data. The second issue was one of the classification procedure to employ. Bem (1974) recommends that persons be classified as androgynous if the absolute value of the t-ratio is less than or equal to one. Hence, in a female population, those for whom the absolute value of the t-ratio is greater than a negative one would be classified as masculine and those for whom the absolute value of the t-ratio is greater than a positive one would be classified as feminine. This proceudre does make for unequal numbers across the three classifications.

An alternative approach to classification has been suggested by Strahan (1979). In this case, the aforementioned simple difference score is used as the basis for classification. Further, since the cut-off points using either t-ratios or difference scores are arbitrary, Strahan recommends simply ranking the difference scores and dividing the distribution into thirds. The difference scores would range from negative values in the cases where masculine means were greater than feminine means through zero to positive values in cases where feminine means were greater than masculine means. Consequently, the top third of the distribution is classified as feminine, the middle third as androgynous, and the bottom third as masculine.

The classification schemes were not further elaborated in the present study to include the undifferentiated category. While this distinction may be of considerable interest in an adult or college age population, from a developmental perspective the distinction may not be appropriate. In other words, while the two groups may differ in their basic assumptions about gender, they are still alike in not being sex typed (Bem, 1974).

In order to promote resolution of these methodological issues, data were analyzed using both classification schemes and both the t-ratio and simple difference scores as dependent variables.

METHOD

Subjects were 65 adolescent females enrolled full-time for three consecutive years at a high school in a medium-sized Midwestern city. These 65 subjects were the only ones from an initial population of 105 sophomores who entered high school in the Fall of 1974. Thus, due to such factors as family mobility, illness at testing dates, etc., there was a sizable dropout rate. The size of the dropout rate is in keeping with expectations for a three year study. All subjects were tested each Fall during the first month of the academic year. All subjects were tested together in an auditorium setting.

The instrument used to assess sextyping was the Bem Sex Role Inventory (BSRI) (Bem, 1974). The placement of the 60 items of the BSRI was modified so that masculine, feminine and neutral items were randomly ordered instead of the usual alternating order. Consequently, all subjects received masculinity and femininity scores from which could be derived the classification of masculinity, femininity or androgyny. On the basis of the Fall 1974 testing during the sophomore year,

nine subjects were classified as masculine, 34 as feminine, and 22 as androgynous on the basis of the t-ratio classification scheme. The difference score classification scheme yielded 20 masculine, 22 androgynous, and 22 feminine subjects.

RESULTS

Masculine-Feminine Scales

A conceptual question that needs be addressed at the outset pertains to the independence of the masculine and feminine subscales on the BSRI with an adolescent population. Independence of scales as indicated by a low correlation between masculinity and femininity scales would support a dualistic conception of masculinity and femininity. The correlations between feminine and masculine scales for the sophomore, junior and senior years were .47, .15, .25 respectively.

The consistency across grades of the self evaluations is best demonstrated by the reliability coefficients for the masculine and feminine scales. The coefficients were +.60, $p<.0001$ between the sophomore and junior years and +.59, $p<.0001$ between the junior and senior years for the masculine scale. Coefficients were +.30, $p<.01$ between the sophomore and junior years and +.44 $p<.0006$ between the junior and senior years on the feminine scale.

The stability of the magnitude of the self evaluation in terms of both the feminine and masculine scales is shown in table 1.

Table 1

Average magnitude of response to masculinity and femininity scale items across high school grades

Sex Type	Sophomore Year	Junior Year	Senior Year
Masculine	4.71	4.79	4.66
Feminine	5.04	5.07	5.09

T-Ratio and Difference Score Classification

Consistency of the self-perception of masculinity as classified on the basis of the t-ratio procedure (Bem, 1974) was analyzed by correlating the self-ratings reported during the Fall of 1975, 1976, and 1977. Between the sophomore and junior years the correlation was +.74, $p<.02$. The magnitude of the coefficient fell to +.13, between the junior and senior years. The coefficients for the self-perception of masculinity based on the difference score classification scheme were +.69, $p<.0001$ between the sophomore and junior years and +.33 (p=Non-sig.), between the junior and senior years.

For the self-perception of femininity based on the t-ratio, the correlation between the sophomore and junior years was +.48 $p<.01$. The correlation between the junior and senior years was +.43 $p<.01$. For the self-perception of femininity based on difference scores, the correlation between the sophomore and junior years was +.47 $p<.03$. The correlation between the junior and senior years was +.39 $p<.05$.

For the subjects classified as androgynous based on the t-ratio, the correlation between the sophomore and junior years was +.38 $p<.08$. The correlation between the junior and senior years was +.52 $p<.02$. For the subjects classified on the basis of difference scores, the correlation between the sophomore and junior years was +.23 $p<.28$. The correlation between the junior and senior years was +.63 $p<.002$.

Stability as well as consistency in self-perception was also of interest. Stability was assessed by computing the average t-ratio and difference score for the masculine groups, the androgynous groups and the feminine groups across the three years of high school. The means are shown in table 2.

Table 2

Stability indexes ($\bar{X}$ response magnitude) across grades based on t-scores and difference scores

	Sophomore Year		Junior Year		Senior Year	
Sex Type	t-ratio	difference	t-ratio	difference	t-ratio	difference
Masculine	-1.94	-.55	-1.39	-.40	-1.68	-.45
Feminine	2.24	1.22	1.48	.75	1.71	.84
Androgynous	.09	.40	.14	.36	.25	.40

Correlated t-tests were used to test for the significance of difference between individual pairs of means. The only significant change across grades in the magnitude of response was a significant decrease in the intensity with which the feminine sextyped groups endorsed feminine characteristics between the sophomore and junior years. This change was significant for both the t-ratio and difference score analyses. No other changes within a category across grades were significant.

DISCUSSION

The lack of independence between the masculine and feminine scales on the BSRI is in contrast to the findings of Bem (1974). However, the Bem sample was drawn from a college population. This lack of independence for the masculine and feminine scales was also noted by Spence and Helmreich (1978) in terms of a small positive intercorrelation between the masculine and feminine scales and the combined M-F scale. The population under consideration by Spence and Helmreich was junior and senior high school students of both sexes. This relative lack of

independence was also noted by Sola and Phye (1979) in a cross-sectional study of sex-role orientation and teacher ratings of high school female students.

The relative lack of independence between the two scales would suggest some support for a bipolar model as well as a dualistic model of conception of masculinity and femininity. This position is similar to that taken by Spence and Helmreich (1978).

However, from a developmental perspective the data are refreshing and lend support for the Block (1973) conceptualization of the relationship between personal maturity and a dualistic conceptualization of masculinity and femininity as expressed by current conceptualization of the androgynous person. The significant decrease in the magnitude of the correlation coefficient between the sophomore and junior years with a slight rise during the junior and senior years would suggest a developmental progression during adolescence from a bipolar to a dualistic conceptualization of masculinity and femininity.

Femininity, Masculinity, and Androgyny

The consistency of the self-perception of masculinity is quite high during the sophomore year. However, there is a precipitous decrease in the magnitude of the correlation during the junior year of high school. The stability of the self-perception also indicates a drop in the intensity with which this group endorse masculine characteristics at the beginning of the junior year.

The androgynous adolescents exhibit a consistent attitude toward themselves across both the sophomore and junior years. In addition to a consistent attitude toward self, the stability data reflect an increasing tendency toward androgyny of an expressive nature.

The self-perception of femininity was the most consistent of the three attitudes. The consistency across the sophomore and junior years was significant. Also, the stability data indicates a significant decrease in the intensity of the endorsement of feminine characteristics across the sophomore and junior years.

Classification Schemes and Dependent Measures

From a developmental perspective, the use of either the t-ratio or the simple difference score as the dependent variable is recommended. From a statistical perspective, the two indexes appear to be comparable in terms of sensitivity to developmental change across time. Matters other than statistical issues might, however, suggest the use of the simple difference score and the classification scheme based on top, middle and bottom thirds of the difference score distribution. This latter recommendation is predicated on the fact that the two classification schemes were equally sensitive to developmental change.

However, the use of the difference score classification scheme does present a practical advantage. The numbers within a given category are equal unless there are tied ranks. This would present fewer problems for within subject or repeated measures designs that are frequently employed with longitudinal studies. Further as pointed out by Sola and Phye (1978), when the populations under investigation are quite different (i.e. high school vs. college sophomores) the proportions with the masculine, feminine and androgyny categories vary a great deal. Hence, the use of the difference score classification scheme should provide a procedure with enhanced external validity.

Reference Notes

Sola, J., Phye, G., & Mann, J. Development of sex-typing in adolescent females: Consequences for achievement motivation. American Psychological Association, 1978.

Sola, J. & Phye, G. Development of sex-role orientation in adolescent females and it's relationship to teacher ratings. American Educational Research Association, 1979.

Strahan, R. Personal communication, January 15, 1979.

References

Bem, S. L. The measurement of psychological androgyny. Journal of Consulting and Clinical Psychology, 1974, 42 (2), 155-162.

Block, J. H. Conceptions of sex roles: Some cross-cultural and longitudinal perspectives. American Psychologist, 1973, 28, 512-526.

Dreyer, P. Research trends in adolescent sex role identity. Paper presented at the American Psychological Association, New York, 1977.

Spence, J. T. & Helmreich, R. L. Masculinity and Femininity: Their Psychological Dimensions, Correlates and Antecedents. Austin, Texas: University of Texas Press, 1978.

Strahan, R. Remarks on Bem's Measurement of Psychological Androgyny: Alternative Methods and a Supplementary Analysis. Journal of Consulting and Clinical Psychology, 1975, 568-571.